

THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 1985

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1985 was a somewhat disappointing year for immigrants. It started brilliantly in the first three weeks of April with one of the largest early influxes known of *Cynthia cardui* L., *Hyles livornica* Esp., and other immigrants. This is discussed below and full details of its content of the scarcer species are given, with later arrivals, in Annexe II. After that, however, in a mostly cold and wet late spring and summer, immigrations were very small. They improved considerably in late September and through October, when there were large influxes of *Rhodometra sacraria* L., *Mythimna loreyi* Dup. and some fifteen other scarcer species; but these came mainly to the south west and west coasts and only very sparingly further east. At no time was there any considerable movement from the east across the North Sea. The season effectively closed early in November with hard frosts and winter weather, despite an unusually warm December. The number of wholly immigrant species reported at 31, was above that in 1984, but there were fewer immigrants of resident species. *Proserpinus proserpina* Pall. was added to the British list, and among the rarities were two *Trigonophora flammea* Esp. and singles of *Apamea lateritia* Hugn., *Chrysodeixis chalcites* Esp., *Hypena obsitalis* Hubn., and immigrants of the resident *Photedes extrema* Hubn. and *Deltote bankiana* Fab.

Records of the April immigration include *Colias croceus* (L), several hundred *C. cardui*, *H. livornica* (over 60), *Macroglossa stellatarum* L. (3), *Agrotis ipsilon* (c25), *Mythimna unipuncta* Haw., *Spodoptera exigua* Hubn. (7), *Caradrina clavipalpis* Scop. (2), *Autographa gamma* (1), *Heliothis peltigera* D. & S. (5), *Nomophila noctuella* D. S. (c.20). About a dozen *Vanessa atalanta* L. were also seen in April, but these may have included over-wintered survivors from 1984. Single *C. cardui* had been seen on February 6 and March 14, but the first of the main immigration was reported at Egloskerry, North Cornwall on April 1, another at Mickleham, Surrey, on April 2, and then in large numbers. They were common all along the South Devon coast on April 3 and 4; many were funneling up the Fernworthy valley north to Dartmoor on April 6; and about 200 arrivals were counted on Lundy Island in the Bristol Channel on April 18. The main distribution was near the south coast from the Isles of Scilly to Dorset, with records eastwards to Kent; but it also went up the west coast to Caernarvonshire and several on Walney Island in Westmorland. Inland there were small

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numbers in Surrey and few or single in twelve counties or vice-counties through the Midlands to south east Yorkshire, where two were seen as early as April 6. The last were seen, very worn, in Sussex and North Hampshire on April 30 and one on St. Martin's. Scilly, on May 1, but the numbers in most places fell away sharply after about April 22.

In Ireland we have records from co. Mid Cork at Rochestown, April 6, Cork City, April 17, and Riverstick, at least 15 (per KGMB). The earliest *H. livornica* were recorded on the night of April 2/3: at Rushmoor, Surrey at 9 p.m. in the New Forest, south Hampshire: and two in Guernsey, Channel Islands. Others quickly followed, and by April 11 two thirds of the dated records. After a short pause, records began again, reached a peak of 10 on April 17, then fell sharply away until April 23; the last were singles in north Cornwall on April 26; a worn female found indoors in south west Ireland on April 30, and one found on June 14 at Plymouth, south Devon in a fly-trap, where it had clearly been for some time. The immigration thus fell sharply into two phases which corresponded closely with wind directions and temperatures: from March 30 to April 6 the air streams were tropical south to south westerly, from April 7 to 14 cyclonic polar south westerly to north westerly, and again anti-cyclonic tropical south west to west from April 15 to 20 (P. A. Davey, *Ent. Rec.* 97: 165-168), with corresponding movements up, down and up in night temperatures. After April 20 until well into May winds over most of Britain were constantly from the north or north west, so that further arrivals were very unlikely. As regards the origins of the immigrants, the probable flight course of one of the first arrivals on April 2/3 has been back tracked by Mr. Davey to the western Sahara at about 27°N., having probably taken some 80 hours over a distance of 1800 miles to Surrey, almost wholly over the western Atlantic. His back-track of the *H. livornica* caught on the Dorset coast at 3 a.m. on August 14 is inconclusive as to its origin; but we have since seen a valuable account (D. Hall *in lit.* and *Ent. Rec.* 98:40) which confirms the same general area as the main source for both *H. livornica* and *C. cardui*. He noted that during his stay at Marrakesch and later at Agadir in Morocco from April 17 to 18 both *H. livornica* and *C. cardui* were very common. At Marrakesch on April 5, *cardui* was in clouds on waste ground, and on April 7 more than 50 were counted in five minutes as they flew over a garden wall. It was also very common at Agadir a few days later, but *H. livornica* was predominant: It swarmed over flowers in the hotel gardens, and on April 15 many were washed up in surf on the beach and clouds were round the lamp outside his room in the evening. No accounts of *H. livornica* on mainland Europe have reached us, but the Moroccan *C. cardui* were part of a wider movement in north Africa and across the Mediterranean.

It was swarming among olive groves at Fiesole, Tuscany from April 13 onwards (Dr. J. L. Campbell), and it was seen at Basel over Easter (S. Whitebread) and elsewhere in Switzerland from the beginning of April (Dr. L. Reser).

The distribution of *H. livornica* in the British Isles was mainly western, like that of *C. cardui* but less extensive. The south coast from Cornwall to Sussex provided three quarters of the records, with 20 in Dorset; on the east there were only two in Essex; on the west one was taken at 1,000 feet inland in Cardiganshire, and two reached the boarder of North Lancashire and Westmorland on April 5 and 6. There was also one in the Isle of Man and two in West Co. Cork, Ireland. Inland there were two in Surrey and singles in six other counties, but none north of Herts. As already mentioned two of the first arrivals were in Guernsey, Channel Islands. Most were found in light traps, but several were resting by day under house windows or on walls, where one remained motionless from one day until the next morning. Several observers commented on their apparent torpidity; but one was seen as it fed in pale sunshine on daffodil blooms. The last seen were a worn female at Mevagissey, E. Cornwall, on May 4, which survived for a week in captivity but laid only one infertile egg.

Of the other immigrant species all but two of the seven *S. exigua* were noted on April 3 and 4, and the single examples of *E. ocella* and *M. unipuncta* were also in the first phase. On the other hand, of 20 *N. noctuella* all but four were seen during the second phase, as were most of the *V. atalanta*; the other species were fairly evenly divided. It is surprising that only one *A. gamma* was reported, at Hayling Island, South Hants., on April 19.

This April immigration as a whole appears to have been biologically ineffective. No larvae, pupae or imagines of *H. livornica* were reported after it, and the later records of adults of *C. cardui* and the other species appear from their dates to have been due to other immigrations. After the great immigrations of *H. livornica* in 1943 and 1949, which took place in late May and in June, there were many locally bred imagines in August. The failure to repeat this in 1985 may have been due to its cold and sunless May and June, or possibly to a lack of pairings before or after arrival.

The season after April was something of an anti-climax. There was a clearly defined immigration in the last week of May, which included, besides the *P. proserpina* already mentioned, single examples of *N. antiopa*, *Acherontia atropos*, and many *C. cardui*; indications of a small influx in the first week of July; and a considerable and varied one in its last ten days, which brought the two first *Rhodometra sacraria* of the year, many *S. exigua*, and very small numbers of six other scarcer immigrants. There was another, mainly of *Agrius convolvuli* and *Mythimna albipuncta* in the last week of

August and early September, to be followed after the middle of that month by a major invasion of *R. sacraria*. This continued also in the first half of October, and was then joined by good numbers of *Mythimna loreyi* and *M. unipuncta* and by a few of over a dozen of the scarcer species which are usually relatively plentiful in the autumn.

Of the scarce immigrant Rhopalocera, the most distinguished were two *Lampides boeticus* at Portland Bill, Dorset, on September 13, and at Highclere, South Hants, on October 21: and two *Danaus plexippus* in Cornwall, both closely watched, at Sennen Cove and at Park Head near Newquay on October 4 and 10; also, one in Co. Cork W. at Castletownberehaven on October 2. North American passerine birds were seen with the first of these; but meteorological information and Heterocera at the same date suggest the Canary Islands or Madeira as a more probable source. There were six records, all of sightings, of *N. antiopa*. The first, in Nottinghamshire on May 25, had probably overwintered from 1984. One, possibly the same insect, was seen at Holland-on-Sea, north Essex on July 8, 10 and 12; others were widely scattered later in July early August, and one was seen in east Sussex on October 25. Some of these, however, may have resulted from releases from captive breeding rather than from immigration. Of *Nymphalis polychloros* three were seen in April and May, which had probably overwintered, two in east Kent, and one on Alderney, Channel Islands; but again there is doubt about the immigrant origin of some or all of them.

Of the common immigrant butterflies, *C. cardui* arrived in considerable numbers, though without any reports of mass sightings, from late May certainly as late as October; but there were no indications of local breeding, except at Seaford, Sussex, where about two dozen larvae were found on July 23, from which imagines emerged in August. Records after April covered over 500, well above the usual annual numbers. They were most numerous from August onwards, with about 140 in October and the last at Hayling Island, south Hants, on November 13. The range, though mainly western and coastal, spread far to the north. It was seen at Cape Wrath, Sutherland, as early as May 26 and in Orkney and Caithness in early July; it was also seen in the other Scottish counties of Mid Lothian, East Lothian and Berwickshire, and on the west side over 80 were recorded in Westmorland/Furness and two in Cumberland. Two were seen in the Isle of Man in July, and we have reports, mostly of singles, in the Irish counties of Cork, Kerry, Galway, Wicklow and Dublin. It was also common on Alderney, Channel Islands from July 27 to October 8. Inland in England it was reported in Surrey, south Wilts., Middlesex, Worcestershire, Warwickshire, Northants., though in none of them in more than single figures.

V. atalanta had a sub-normal season, with apparently very little local breeding, though a single larva was found in Orkney on August 25, and an imago on September 29. Single examples seen at Ipswich on January 31 and at Oare Marshes, Kent on February 24 were presumably winter survivors and, as already noted, a few were seen during the April immigration. Considerable numbers did arrive with *C. cardui* late in May, and three were seen on Walney Island, Westmorland on May 27 and 30 and a single as far north as Carrbridge in Invernesshire on June 6, but they were generally scarce in June and it was not until mid July that they became numerous, and then only near the coast. In August the species became more general and was fairly common in Northants, and other Midland counties, and continued to be so through September when one entered a light trap in Kirkcudbrightshire on September 19. Large numbers reported in October were mainly due to late influxes. In Cornwall, 31 were counted at St. Ives between October 12 and 15, and many hundred were seen coming in off the sea at Rame Head on October 20, but we had no accounts of it in November or December. Five were seen in the Isle of Man in September and a few in Co. Cork and Co. Kerry, also in September, and in Alderney it was reported as common from July 27 to August 10.

(to be continued)

Notes and Observations

HIPPARCHIA NEOMIRIS GODART (LEP.: SATYRIDAE) AT SEA LEVEL IN CORSICA. — The Corsican grayling, *Hipparchia neomiris*, is confined to Corsica, Sardinia and Elba, and according to L. G. Higgins and N. D. Riley (*A field guide to the butterflies of Britain and Europe*, Collins, 1983) it occurs on mountains at 900-1800 metres, except on Elba where it inhabits lower elevations. Between 7 and 22 September 1985 I observed butterflies around Porto, Corsica, which is on the coast at or just above sea level. Almost all were feeding from patches of flowering mints, *Mentha aquatica* and *Mentha* (?) *suaveolens*, associated with fresh-water springs, and from clumps of *Inula viscosa*, the yellow flowers of which were conspicuous along roadsides. These were the only significant sources of nectar in an otherwise desiccated landscape. The southern grayling, *Hipparchia aristaeus*, was abundant, and among them I found two *Hipparchia neomiris*, indicating that at least occasionally this species occurs at sea level in Corsica. DENIS F. OWEN, 2 Shelford Place, Headington, Oxford.